

What is claimed is:

1. A device for managing data objects, comprising:

displaying means for displaying thumbnails
representative of data objects;

5 defining means for defining a focus region that
indicates a focus thumbnail subject to processes;

moving means for moving the displayed thumbnails along
a predetermined path through the focus region; and

enable/disable means for selectively enabling and
10 disabling the moving means, the displaying means statically
displaying a single thumbnail in the focus region when the
enable/disable means disables the moving means, the
displaying means displaying the thumbnails to move along the
predetermined path through the focus region when the
15 enable/disable means enables the moving means.

2. A device as claimed in claim 1, wherein the
displaying means displays the thumbnails in partial overlap
with sections of each thumbnail exposed, and changes
relative position of thumbnails to change exposed sections
20 of thumbnails while the enable/disable means enables the
moving means.

3. A device as claimed in claim 1, wherein the
displaying means displays the thumbnails in partial overlap,
and changes overlapping sections of thumbnails while the
25 enable/disable means disables the moving means.

4. A device as claimed in claim 1, wherein the displaying means further displays an interface portion with a plurality of indicia, and further comprising selection means for selecting one of the indicia of the interface portion.

5. A device as claimed in claim 4, wherein the indicia include a plurality of layout indicia each representing one of a plurality of layouts, the displaying means displaying the thumbnails in relative positions, and the moving means moving the thumbnails along a predetermined path, in accordance with the layout indicium selected by the selection means.

6. A device as claimed in claim 5, wherein the displaying means further displays file names of files containing the data objects of the thumbnails, the displaying means displaying the file names in a pattern that is inverse a pattern formed by the thumbnails.

7. A device as claimed in claim 5, wherein:
the displaying means displays the selected layout indicium at a present layout position to indicate presently displayed layout of the thumbnails; and

when the selection means newly selects a layout indicium, the displaying means displays movement of the newly selected layout indicium to the present layout position and movement of a preceding selected layout

indiciu out of the present layout position.

8. A device as claimed in claim 5, wherein:

the layout indicia include a line indicium; and

when the selection means selects the line indicium,

5 the displaying means displays the thumbnails in a line layout with the thumbnails aligned in partial overlap in a line.

9. A device as claimed in claim 8, wherein the displaying means displays the thumbnails in the line layout with a reciprocal pivoting motion, the focus thumbnail serving as an unmoing axis of the pivoting movement.

10. A device as claimed in claim 5, wherein:

the layout indicia include a circle indicium; and

when the selection means selects the circle indicium,

the displaying means displays the thumbnails in a circle layout with the thumbnails disposed in partial overlap in a circular ring.

11. A device as claimed in claim 10, wherein, when number of thumbnails exceeds a predetermined number, the
20 displaying means displays a portion of the thumbnails in an arc with a predetermined radius and the moving means sequentially changes displayed thumbnails while enabled.

12. A device as claimed in claim 5, wherein:

the layout indicia include a grid indicium; and

25 when the selection means selects the grid indicium,

the displaying means displays the thumbnails in a grid layout with thumbnails aligned with fixed mutual positions in rows and columns.

13. A device as claimed in claim 12, wherein:

5 the displaying means displays the thumbnails in the grid layout in rows having a length that can be completely displayed at once; and

10 when the enable/disable means enables the moving means, the moving means moves the thumbnails of a single column through the focus region.

14. A device as claimed in claim 12, wherein the moving means when enabled moves the thumbnails in the grid layout through the focus region one row at a time in succession, starting from the same end of each successive row.

15. A device as claimed in claim 5, wherein:

the layout indicia include a helix indicium; and

20 when the selection means selects the helix indicium, the displaying means displays the thumbnails in a helix layout that mimics a side view of a helix by displaying thumbnails at a far side of the helix in a smaller scale than thumbnails at a near side of the helix.

25 16. A device as claimed in claim 15, wherein the displaying means displays the thumbnails in the helix layout to mimic a helix with a shorter radius when the

enable/disable means enables the moving means than when the enable/disable means disables the moving means.

17. A device as claimed in claim 15, wherein the displaying means displays movement of the thumbnails in the helix layout through the focus region by displaying spiral movement of the helix.

18. A device as claimed in claim 15, wherein the displaying means displays movement of the thumbnails in the helix layout through the focus region by shifting the helix one pitch distance to move the present focus thumbnail out of the focus region and to move a thumbnail of an adjacent ring of the helix into the focus region.

19. A device as claimed in claim 5, wherein, when the selection means selects a new layout indicium that is different from a preceding selected layout indicium, the displaying means repositions the thumbnails into a new layout that corresponds to the new layout indicium while displaying the thumbnails moving toward and into positions of the new layout.

20. A device as claimed in claim 4, wherein the indicia include a plurality of order indicia each representing one of a plurality of predetermined sequence orders, the displaying means displaying the thumbnails in an order represented by an order indicium selected by the selection means.

21. A device as claimed in claim 20, wherein:

the displaying means displays the selected order indicium at a present order position to indicate present order of the thumbnails; and

5 when the selection means newly selects an order indicium, the displaying means displays movement of the newly selected order indicium to the present order position and movement of a preceding selected order indicium out of the present order position.

10 22. A device as claimed in claim 20, wherein, when the selection means selects a new order indicium that is different from a preceding selected order indicium, the displaying means repositions the thumbnails according a new order that corresponds to the new order indicium, while displaying movement of the thumbnails into positions appropriate for the new order.

23. A device as claimed in claim 20, wherein:

the order indicia include a time indicium; and

20 when the selection means selects the time indicium, the displaying means displays the thumbnails in groups according to when the corresponding data objects were produced.

24. A device as claimed in claim 20, wherein:

the order indicia include a time indicium; and

25 when the selection means selects the time indicium,

the displaying means displays the thumbnails separated by distance corresponding to time between when the corresponding data objects were produced.

25. A device as claimed in claim 4, wherein the indicia include a plurality of application indicia each representing one of a plurality of applications, and further comprising an application launcher that launches an application that corresponds to the application indicium selected by the selection means.

26. A device as claimed in claim 1, further comprising further request means for indicating desire for further information on data object that corresponds to the focus thumbnail, the displaying means enlarging display of the focus thumbnail when the further request means indicates a desire for further information.

27. A device as claimed in claim 26, wherein the displaying means displays application indicia representing software applications when the further information request means indicates a desire for further information on the data object of the focus thumbnail.

28. A device as claimed in claim 1, wherein the displaying means displays thumbnails of audio data objects for audio contents based on data of the audio data object.

29. A device as claimed in claim 28, wherein the displaying means displays thumbnails of audio data objects

according to amount of data in the audio data object.

30. A device as claimed in claim 28, wherein the displaying means displays thumbnails of audio data objects according to content of data in the audio data object.

5 31. A device as claimed in claim 1, further comprising:

retrieval means for retrieving data objects from a memory card; and

10 recognition means for recognizing presence of a memory card and activating the retrieval means when a memory card is present.

15 32. A device as claimed in claim 31, wherein the displaying means displays thumbnails one at a time in a sequence that the retrieval means retrieves the data objects from the memory card.

20 33. A device as claimed in claim 1, further comprising search means for searching to find thumbnails that meet certain criteria, the displaying means displaying only thumbnails found by the search means.

25 34. A device as claimed in claim 1, wherein when the enable/disable means enables the moving means, the moving means determines a target position for each thumbnail, and moves the thumbnails to their respective target positions in an easing-in movement.

30 35. A device as claimed in claim 1, wherein the

displaying means displays the thumbnails in a line layout with the thumbnails aligned in partial overlap in a line.

36. A device as claimed in claim 1, wherein the displaying means displays the thumbnails in a circle layout with the thumbnails disposed in partial overlap in a circular ring.

37. A device as claimed in claim 1, wherein the displaying means displays the thumbnails in a grid layout with thumbnails aligned with fixed mutual positions in rows and columns.

38. A device as claimed in claim 1, wherein the displaying means displays the thumbnails in a helix layout that mimics a side view of a helix by displaying thumbnails at a far side of the helix in a smaller scale than thumbnails at a near side of the helix.

39. A method for managing data objects, comprising the steps of:

displaying thumbnails representative of data objects;

defining a focus region that indicates a focus thumbnail subject to processes; and

selectively displaying a single thumbnail in the focus region, and displaying the thumbnails moving along a predetermined path through the focus region.

40. A program storage medium for storing data of a program indicative of a process for managing data objects,

5

a program for defining a focus region that indicates a focus thumbnail subject to processes; and

1870	1871	1872	1873	1874	1875	1876	1877	1878	1879	1880	1881	1882	1883	1884	1885	1886	1887	1888	1889	1890	1891	1892	1893	1894	1895	1896	1897	1898	1899	1900	1901	1902	1903	1904	1905	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	2101	2102	2103	2104	2105	2106	2107	2108	2109	2110	2111	2112	2113	2114	2115	2116	2117	2118	2119	2120	2121	2122	2123	2124	2125	2126	2127	2128	2129	2130	2131	2132	2133	2134	2135	2136	2137	2138	2139	2140	2141	2142	2143	2144	2145	2146	2147	2148	2149	2150	2151	2152	2153	2154	2155	2156	2157	2158	2159	2160	2161	2162	2163	2164	2165	2166	2167	2168	2169	2170	2171	2172	2173	2174	2175	2176	2177	2178	2179	2180	2181	2182	2183	2184	2185	2186	2187	2188	2189	2190	2191	2192	2193	2194	2195	2196	2197	2198	2199	2200	2201	2202	2203	2204	2205	2206	2207	2208	2209	2210	2211	2212	2213	2214	2215	2216	2217	2218	2219	2220	2221	2222	2223	2224	2225	2226	2227	2228	2229	2230	2231	2232	2233	2234	2235	2236	2237	2238	2239	2240	2241	2242	2243	2244	2245	2246	2247	2248	2249	2250	2251	2252	2253	2254	2255	2256	2257	2258	2259	2260	2261	2262	2263	2264	2265	2266	2267	2268	2269	2270	2271	2272	2273	2274	2275	2276	2277	2278</
------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	--------